ATTACHMENT K

November 23, 2015 Letter
IRGI to Tracie White and Curtis Stovall
COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

LETTER, JULY 24, 2015, BURNS & MCDONNELL TO IRGI ("ASSURANCE LETTER")

BURNS McDONNELL

July 24, 2015

Peter Goffstein
IRG Redevelopment I, Inc.
1100 Santa Monica Boulevard
Suite 850
Los Angeles, CA 90025

Re: Development and Post Development Financial Assurance Cost Estimate, OU2 Landfill, Lowry Vista Project, Denver, Colorado

Dear Mr. Goffstein:

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) is transmitting on behalf of IRG Redevelopment I, LLC (IRGI) the enclosed financial assurance cost estimates for the Lowry Vista development project. Two estimates are included: 1) An estimate of remediation during development (During Development Scenario or DDS) and; 2) An estimate of remediation after development (Post-Development Scenario or PDS). The RS Means Cost Works 2015, 19th Annual Edition was used for the majority of the construction cost estimating. Vendor/contractor estimates and Burns & McDonnell's professional remediation and site experience was used for the remainder.

The DDS and PDS cost estimates are presented on the attached Tables 1 and 2, respectively. Both scenarios are believed to have a reasonable maximum likelihood of occurring. Each scenario is described in detail in the paragraphs below. Multiple discoveries may arise during the course of development; however, the scenarios presented assume that the developer will abandon the project, leaving the burden of affecting the remediation on the state of Colorado. This will only occur once, thus only one scenario is presented for each phase of development.

During Development Scenario

The DDS assumes that drums of chlorinated solvents are discovered during waste excavation at the northwest corner of the site and that IRGI then stops work and does not provide for the remediation. The following assumptions have been made for this scenario:

- **Site Setting**
    - During the redevelopment process, waste excavation from the northern end will occur in an orderly manner that minimizes the amount of exposed waste at any one time. It is anticipated the maximum amount of exposed waste at any one time will be about 20,000 square feet (sf). All waste will be excavated from a given open area and the site regraded prior to penetrating the cap to excavate another 20,000 sf. The northern remaining end of the existing cap will be transitioned to the new grade as the excavation progresses
    - At the time of encountering the drummed waste, it is assumed that IRGI completes or has completed the majority of the excavation of the exposed waste, and constructs temporary storm water controls, and installs the cap transition in the 1-acre area affected. This would leave a

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cordoned off area of drums and solvent-contaminated waste/soil/debris and a 100 foot length of cap to be extended to the post excavation grade.

- **Procurement and Design**

  - It is assumed that the Colorado Department of Public Health and Environment (CDPHE) would hire an environmental consulting firm and an environmental contractor to manage the removal and disposal of the hazardous waste. Their scope would consist of work plan preparation, field implementation, and Construction Quality Assurance (CQA) certification report preparation.
  - The work plan is assumed to cost $10,000.
  - CDPHE will review and approve the work plan and report at a cost of $125/hour. It is assumed that 40 labor hours will be expended to procure the engineer and review the work plan and report.
  - CDPHE will also procure a remediation contractor to perform the excavation and disposal. It is estimated that 20 labor hours will be expended to procure the remediation contractor.

- **Site Preparation**

  - Mobilization and demobilization were estimated at a total of ten percent (5 percent each) of the total field construction costs. This covers the cost to deliver and pick up a field trailer and heavy equipment from the site and to establish and remove a staging area and decontamination area.
  - Workers will be required to enter the excavation to handle drums and place solvent-contaminated soil in drums. It is assumed the workers will be performing the work in Level C personal protective equipment (PPE) and will be entering and exiting the area through a contamination reduction zone (CRZ).
  - It is assumed a CRZ of approximately 500 square feet will be established and shower unit will be provided.
  - Storm water controls will be upgraded to allow equipment access and to accommodate the Level C exclusion zone and CRZ.

- **Hazardous Waste Management**

  - 10 intact drums of liquid chlorinated solvent are assumed to be encountered during the waste excavation on the north side of the site.
  - The chlorinated solvent drums and immediately adjacent waste/debris/soil that has been contaminated by the solvent are assumed to classify as hazardous and require incineration for disposal.
  - It is assumed 200 55-gallon drums (~50 cy) of solvent-contaminated waste/debris/soil will be excavated and containerized.
  - Drums containing liquid and soil will be transported to the Clean Harbors Kimball Incineration Facility in Kimball, Nebraska for disposal.

- An additional 200 cy of non-hazardous waste/soil/debris will be encountered during the excavation and require off-site disposal. This material will be trucked in 20 cy containers and disposed of at the Denver Arapahoe Disposal Site (DADS) Landfill in Aurora, Colorado.
- It is assumed partial dewatering of the excavation will be necessary for the removal of the drums and soil. The groundwater will be lowered using two well points pumping at 4 gallons per minute (gpm) each. Groundwater will be pumped into tanks before being treated using granular activated carbon and reinjected to groundwater through a third well point. A Class V groundwater injection permit will be obtained from US Environmental Protection Agency.

- **Site Reclamation**

  - The cap extension design is assumed to consist of sloping the waste/debris/soil at the transition at a 3:1 (horizontal:vertical) or flatter slope, placing 18 inches of intermediate cover over the waste, installing a geomembrane-backed geosynthetic clay liner (GCL) over the slope and then placing three feet of clean soil cover over the GCL.
  - It is assumed that 10 acres of excavated area will remain after remediation of the chlorinated solvents. This area will require minimal regrading and then revegetation.

- **Management and Oversight**

  - It is assumed that the environmental consultant will have field engineers/scientists at $120/hour who will spend 200 hours total to oversee the site remediation, the cap extension, and site reclamation. They will also provide confirmation testing, and help prepare the certification report.
  - The environmental consultant will also have a construction quality assurance (CQA) engineer/project manager who will oversee the entire project and prepare and certify a completion report. It is assumed that the CQA Engineer will need 50 hours total on the project at $190/hour.
  - CDPHE will visit the site three times and review and approve the CQA Report at a cost of $125/hour (assumed 25 hours needed).

The estimated cost for the DDS in 2015 dollars is $390,000. A detailed breakdown of the estimate is provided on Table 1.

Post Development Scenario

The PDS assumes an area of waste that cannot be excavated begins contaminating the groundwater and must be remediated using groundwater treatment. Specifically the scenario is based on the release of approximately 50 gallons of chlorinated solvent. The release will not be discovered until the development is complete and groundwater contamination is detected at the current down gradient monitor wells. As with the DDS, it is assumed that IRGI (or the planned Lowry Vista Metro District) does not provide for the remediation. The following assumptions have been made for this scenario:

- **Site Setting**
  - It is assumed that the groundwater detections occur on the west half of the property, immediately downgradient of a planned big-box developer.
  - At the time of the groundwater detections, construction of all buildings, utilities, roadways, and landscaping completed.
  - All buildings in the development will be constructed with a passive vapor intrusion system consisting of the Cupolex or similar style "aerated" concrete floor. The passive systems will be tied into a blower and power. Thus if an active system is required, only a switch will need flipped. The Cupolex system (www.cupolex.com) is a patented concrete forming system that utilizes interlocking plastic platforms (similar in shape to a footstool) on top of which a concrete slab is poured. The resulting very large void space beneath the concrete slab provides effective passive venting and, if an active system is required, a vacuum can be applied by a very small blower size.
  - The source of the solvent release is assumed to be located beneath the Walmart, making excavation of the source not possible.

- **Procurement and Design**
  - It is assumed that CDPHE would hire an environmental consulting firm to determine the nature and extent of the contamination as well as a remediation work plan. Their scope would consist of:
    - Planning and performance of a field investigation to identify the nature, extent, and source of the release.
    - Preparation of an investigation report and remediation work plan.
    - Implementation of the remediation work plan.
    - Long-term monitoring of the affected area.
  - CDPHE's cost is $125/hr. It is assumed that 150 labor hours will be expended to procure the consultant, oversee the investigation and review the investigation report and remediation work plan.

- **Remediation**
  - Mobilization and demobilization were estimated at a total of 5 percent of the total field costs. This covers the cost to deliver and pick up equipment from the site, stormwater controls, and to establish and remove a staging area.
  - The groundwater treatment system will include both pumping and injection wells to maintain control of groundwater and accelerate solvent removal by increasing the gradient through the source. Two pumping wells and three injection wells will provide efficient capture and improved recovery. The pumping wells will be located in the excavated area north of Walmart and the injection wells will be located in the parking lot south of Walmart.
  - Four monitoring wells will be installed downgradient of the pumping wells to monitor groundwater flow downgradient.

- Hydraulic conductivity based on data collected during the OU2 investigation is assumed to be approximately 1 ft/day.
- Thickness of the water bearing unit is assumed to be variable based on topographic setting but generally less than 30 feet.
- Using these hydrogeologic assumptions, an analytical groundwater model was used to estimate that 2 wells with a combined extraction rate of 6 to 8 gpm would capture the contaminant plume resulting from the release scenario.
- Based on distance from the source and anticipated behavior for the solvent, the extracted groundwater is assumed to contain an initial concentration of 10 ppm.
- As pumping progresses the expected concentration will decrease and the long term average concentration is assumed to be 1 ppm for the purpose of estimating operation lifetime.
- Using the total volume of release, pore volume removal of the extraction system and the assumed average removal concentration the time of pump and treat operation is calculated to be 17 years.
- Acceleration of cleanup will be achieved by enhancing the pump and treat system through the injection of potassium permanganate. Two injections will be performed to optimize the enhancement of the removal system. This enhancement is conservatively assumed to reduce operating time for the system to 10 years.
- It is assumed that the treatment system components and all controls and instrumentation will be placed in a permanent building.

- **Operation and Maintenance**

  - It is assumed the groundwater pumping and treatment system will be operated for 10 years. The system will require periodic operation and maintenance and sampling. Based on our experience on similar projects, we conservatively estimate this cost to be $60,000/year, which would include costs for periodic equipment replacement/repair.
  - Sampling of groundwater, extracted water and treated water on a quarterly basis is also included for the 10 year lifetime.
  - Rehabilitation of both extraction and injection wells will be required on a two year rotation beginning two years after installation. Rehabilitation will include removal of any down-hole equipment, chemical treatment, physical scrubbing and pumping to maintain design extraction and/or injection rates.

- **Management and Oversight**

  - The environmental consultant is assumed spend $30,000 per year to download and evaluate system data, troubleshoot problems, perform periodic inspections, and prepare an annual monitoring report
  - CDPHE is assumed to spend 100 hours during remediation and 20 hrs/year of monitoring to oversee the project.

The estimated cost for the PDS in 2015 dollars is $2,700,000. A detailed breakdown of the estimate is provided on Table 2.

Required Financial Assurance

Prior to beginning development, IRGI will submit a financial assurance instrument suitable to CDPHE to cover the cost estimate for the DDS described above. Once the development is substantially complete, IRGI will submit a financial assurance instrument suitable to CDPHE to cover the cost estimate for the PDS described above.

Closing

Please feel free to contact Brad Coleman at (303) 362-2335 or bacoleman@burnsmcd.com or Ira Star at (303) 638-4987 or ira_star@yahoo.com if you have any questions.

Sincerely,

Joshua L. Lee, PE
Senior Engineer

Bradley A. Coleman, PE
Project Manager

JLL/mdg

Enclosures
Table 1 – Financial Assurance Cost Estimate, During Development Scenario
Table 2 – Financial Assurance Cost Estimate, Post-Development Scenario

cc: Ira Star, Impaired Real Estate Assessment & Management

TABLE 1
Financial Assurance Cost Estimate
Remediation During Development Scenario
Lowry Vista Redevelopment

Item Description	Quantity	Unit	Unit Cost	Reference	Cost	Remarks
Base Quantities						
Assumed Liquid Drum Quantity	**10**	drums				
Assumed Non-aqueous Drum Quantity	**200**	drums				200 55 gall drums of soil/waste/debris equates to roughly 50 cy of material
Efficiency Reduction for Level C PPE	**50%**			Professional Experience		
Drum and Soil Handling Duration (Level D PPE)	**8**	days		RS Means Item 3123161315000 - Crew A9		RS Means states 1 worker can hand load 4 cy/day of soil. As this will be soil/waste/debris loading into a barrel. It is assumed that one worker can load 1 cy/day. It is assumed that 6 workers will be working each day.
Drum and Soil Handling Duration (Level C PPE)	**17**	days		RS Means Item 3123161315000 - Crew A9		6 workers at 0.5 CY/day/worker , 50 CY total
Additional Days Needed to Complete Reclamation	**3**	days		Professional Experience		Cap extension work and site grading is assumed to occur at the same time as the remediation
Total Duration	**20**	days				
Procurement and Design						
CDPHE Consultant Procurement and Work Plan Review	40	hours	$125	CDPHE review cost/hour	$5,000	base assumption
Work plan Preparation	1	lump sum	$10,000	Professional Experience	$10,000	base assumption
CDPHE Contractor Procurement	20	hours	$125	CDPHE review cost/hour	$2,500	base assumption
				Subtotal	**$12,500**	
Site Preparation						
Mobilization	1	lump	$17,130	Professional Experience	$17,200	5% of Total Construction Cost
Demobilization	1	lump	$17,130	Professional Experience	$17,200	5% of Total Construction Cost
				Subtotal	**$34,400**	
Hazardous Waste Management						
Storm water controls	1	lump	$5,000	Professional Experience	$5,000	
Decontamination Area	1	lump	$5,200	RS Means Items 028213420450 + 028213411600	$5,200	$1,425 Shower Unit, Personal Decon Station $7.55 S.F at 500 square feet
PPE Daily Costs	17	days	$140	RS Means Item 028213412000	$2,400	Cartridge $5/day; inner gloves $1/day; outer gloves $5/day; hooded disposal coveralls $3/day. Assume respirators, and other PPE is $6/day 6 Laborers and 1 CQA Monitor each day
Waste Removal	816	hours	$80	RS Means Item 3123161315000 Crew A9	$65,300	Assumes six laborer for 17 days at 8 hrs/day
Chlorinated Solvents Disposal	10	barrels	$240	Clean Harbors Estimate	$2,400	Assumed 10 intact barrels of liquid solvent for incineration;includes transportation
Contaminated Soil Disposal	200	barrels	$600	Clean Harbors Estimate	$120,000	Assumed 200 barrels of solvent-contaminated soil/waste, includes transportation
Obtain UIC Permit	1	lump	$5,000	professional experience	$5,000	class V, USEPA
Install Well Point System	75	linear foot	$75	Recent Project Estimate	$5,700	3-25' wells. 2 days total
Supply, Installation, and Removal of Piping/Pumping System	300	linear foot	$41	RS Means Item 312319400110	$12,200	Supply, installation, and removal of 300 linear feet of header pipe and pumps around excavation
Operate Well Point System	17	day	$1,725	RS Means Item 312319400410	$28,800	2 - 4gpm wells. 11,520 gal/day. Pump operation at 4-6 hour shifts; incl fuel and labor
Water Storage	17	day	$1,135	Rainforrent Estimate	$19,000	3 - 21,000 gallon tanks including drop-off, pickup and hookup
Water Treatment	1	lump	$4,902	Rainforrent Estimate	$5,000	2000 pound granular activated carbon vessel, up to 100 gpm flow rate
Water Testing	3	sample	$180	eAnalytics Estimate	$600	24 hour turnaround
				Subtotal	**$276,600**	
Site Reclamation						
Grade waste at transition	1	lump	$1,000	Professional Experience	$1,000	
Place and Grade Temporary Cover	278	cubic yard	$2.66	RS Means Item 312323203014	$800	assume 100'L x 50'wide x 1.5' deep
Place GCL	5,500	square ft	$0.85	Professional Experience	$4,700	assume 100'L x 50'wide plus 10% for anchoring
Place Cover Soil on GCL	556	cubic yard	$1.66	RS Means Item 312323203014	$1,000	assume 100'L x 50'wide x 3' deep
Regrade Reclaimed Area	10	acre	$1,000	Professional Experience	$10,000	base assumption
Revegetate Reclaimed Area	10	acre	$1,175	RS Means Item 32921930020	$11,800	base assumption
				Subtotal	**$29,300**	
Management and Oversight						
CQA Engineer/Project Manager	50	hours	$190	professional experience	$9,500	project mgmt. and report finalization/certification
Field Engineer/Scientist	200	hours	$120	professional experience	$24,000	field coordination and oversight
CDPHE Management and Oversight	25	hours	$125	CDPHE review cost/hour	$3,200	assumes two 4 hr visit
				Subtotal	**$36,700**	
Total Cost Estimate				**Total**	**$390,000**	

TABLE 2
Financial Assurance Cost Estimate
Remediation Post-Development Scenario
Lowry Vista Redevelopment
IRG Redevelopment I, LLC

Item Description	Quantity	Unit	Unit Cost	Unit Cost Reference	Cost	Remarks
Procurement and Design						
CDPHE Procurement and Review	150	hours	$125	CDPHE review cost/hour	$18,800	base assumption
Field Investigation	1	lump sum	$350,000	Recent Project Experience	$350,000	Preparation and implementation of a work plan to identify nature & extent of the release.
				Subtotal	**$368,800**	
Remediation						
Design, Permitting, and Planning	1	lump sum	$150,000	Recent Project Experience	$150,000	Based on Georgia project
Fieldwork Mobilization/Demobilization	1	lump sum	$38,425	Recent Project Experience	$38,500	5% of remediation field costs
Drill Well Point System	300	linear foot	$75	Recent Project Experience	$22,500	2 pumping wells, 3 injection wells,4 monitoring wells all at 35 feet, 9 days. Assumes 1 day per well with sampling. 300 total feet of drilling. Divided total cost by total feet of well being drilled.
Pipe Trenching and Backfill	2,000	linear foot	$25	Recent Project Experience	$50,000	Trenching for well pumping, treatment and injection system. Rough dimensions of area from extraction wells, around walmart to treatment, back to injection wells
Survey Building and Wells	1	lump sum	$4,000	Recent Project Experience	$4,000	Similar NE project in 2011, adjusted for inflation
Process Electrical/Plumbing/Mechanical	1	lump sum	$20,000	Recent Project Experience	$20,000	Similar NE project in 2011, adjusted for inflation
Pumping Components/Controls/Instrumentation	1	lump sum	$92,000	Recent Project Experience	$92,000	Similar NE project in 2011, adjusted for inflation
Treatment Building	1	lump sum	$80,000	Recent Project Experience	$80,000	Similar NE project in 2011, adjusted for inflation
Power Installation to Site	1	lump sum	$100,000	Recent Project Experience	$100,000	Similar NE project in 2011, adjusted for inflation
Permanganate Injection and Monitoring	2	lump sum	$200,000	Recent Project Experience	$400,000	Injection of and monitoring for permanganate and solvent consituents - one time, ID project
				Subtotal	**$957,000**	
Operation and Maintenance						
Operation, Maintenance and Field Sampling	10	year	$60,000	Recent Project Experience	$600,000	Similar GA project in 2012
Analyze Water Samples	10	year	$720	eAnalytics Estimate	$7,200	$180/sample @ 4 samples/year, routine quarterly sampling for 10 years
Electrical	10	year	$4,000	Recent Project Experience	$40,000	4k per year for 10 years. GA 2012 project
Disposal of Spent Media	10	year	$4,000	,Clean Harbour Estimate	$40,000	16000 pounds per year of hazardous material. Disposal cost is $0.25/pound per Clean Harbors
Well Rehabilitation	5	event	$40,000	Professional Experience	$200,000	5 wells At $8k/well. Biannual rehabilitation of wells
Operation and Maintenance of Walmart Vapor Intrusion System	10	year	$7,750	Geosyntec (CEMS presentation)	$77,500	150k sf bldg @ $.05/yr, Cupolex floors, incl electrical cost
				Subtotal	**$964,700**	
Management and Oversight						
Consultant Support/Reporting	10.0	year	$30,000	Professional Experience	$300,000	Downloading system data, analyze, reporting, oversight
CDPHE Management and Oversight	250	hours	$125	CDPHE review cost/hour	$31,300	Assumes 100 hrs during remediation and 20 hrs/year during monitoring
				Subtotal	**$331,300**	
Total Cost Estimate				**Total**	**$2,700,000**	